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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,990	11/14/2003	Won-Jun Koh	1572.1210	7361
21171	7590	08/22/2005	EXAMINER	
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			BOATENG, ALEXIS ASIEDUA	
			ART UNIT	PAPER NUMBER
			2838	

DATE MAILED: 08/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/706,990

Applicant(s)

KOH ET AL.

Examiner

Alexis Boateng

Art Unit

2838

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11/14/2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: In summary of the invention, in paragraph [0009], the word form should be changed to from.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Kaite (U.S. 6,016,046).

Regarding claim 1, Kaite discloses a charging system to charge a battery of a robot, comprising: a charger (fig. 2 item 101);

a first charging part provided in the charger (fig.2 item 115) and including a high-frequency current generator (fig. 2 item 116) to rectify commercial power and to convert the rectified power into a high frequency square wave signal (fig 2 item 118), a primary induction coil (fig. 1 item 113) to generate an electromagnetic field by the high frequency square wave signal supplied from the high frequency current generator, and a first terminal part to emit the electromagnetic field created by the primary induction coil and;

a second charging part (fig. 2 item 120) provided in the robot and including a second terminal part to mate with the first part, a secondary induction coil (fig. 2 item 114) to

generate an induced current by the electromagnetic field emitted from the first charging part and a DC converter (fig. 2 item 122) to rectify the induced current generated from the secondary induction coil and to supply DC power to the battery.

Regarding claim 27, Kaite discloses wherein the battery of the robot is charged without electrical contact between the robot and the charger (column 1 lines 9 thru 12)

4. Claim 29, 30 and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Park et al. (U.S. 6,683,438)

Regarding claim 29, Park discloses wherein a charging system to charge a battery of a robot, comprising: a charger (column 1 lines 65 thru 67);

a first charging unit provided in the charger to generate an electromagnetic field (fig. 2 item 110), and including a first terminal part to emit the electromagnetic field (fig. 1 item 150); and

a second charging part (fig. 2 item 300) provided in the robot and including a second terminal part to mate with the first terminal part (fig. 2 item 350), to generate an induced current by the electromagnetic field emitted from the first charging part, supplying power to the battery.

Regarding claim 30, Park discloses a protrusion and a protrusion accommodating part provided in the second terminal part and the first terminal part, respectively (fig. 1 items 300 and 100).

Regarding claim 33, Park discloses a charging system having a charger to charge a battery of a robot, comprising: a first charging unit provided in the charger to generate an

electromagnetic field (fig. 2 item 110), and including a first terminal part to emit the electromagnetic field;

and a second charging part provided in the robot (fig. 2 item 300) and including a second terminal part to mate with the first terminal part (fig. 2 item 350), to generate an induced current by the electromagnetic field emitted from the first charging part, supplying power to the battery,

wherein the battery of the robot is charged without electrical contact between the robot and the charger (column 1 lines 39 thru 42).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2, 3, 6, 9, 12, 16 – 20, 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaite (U.S. 6,016,046) in view of Shirai (U.S. 5,550, 452).

Regarding claim 2 and 3, Kaite does not disclose wherein the first terminal comprises: a terminal member movable relative to the charger; and an elastic member interposed between the terminal member and the charger. Shirai discloses in figures 1A and 1B, a terminal member, item 78, movable relative to the charger. Shirai further discloses an elastic member interposed between the terminal member and the charger, item 106. At the time of invention, it would have been obvious to a person of ordinary skill in the art to design the Kaite system with a terminal member,

which is movable by an elastic member so the charging apparatus is cushioned during contact, which protects the charger from early wear and damage.

Regarding claims 16 and 17, Kaite does not disclose wherein the elastic member comprises: a spring elastically deformable to absorb shocks when the protrusion is accommodated in the protrusion accommodated part. Shirai discloses in figure 4 items 104, 78 and 106, a spring elastically deformable to absorb the shocks when the protrusion, 78 and 104, is accommodated in the protrusion 102, so that the coils are protected from damage during the process of charging. At the time of invention, it would have been obvious to a person of ordinary skill in the art to implement shocks that are elastically deformable to absorb shocks so that the coils are covered and protected during the process of charging.

Regarding claims 6, 9, 12, 18, 19, 20, 31 and 32, Kaite does not disclose wherein the protrusion is accommodated in the protrusion accommodating part, leaving a margin in which the protrusion is movable in a direction vertical to a docking direction. Shirai discloses in figure 4, items 100 and 102 the protrusion and the protrusion accommodating part where the protrusion is movable in the docking direction. At the time of invention, it would have been obvious to a person of ordinary skill in the art to implement a movable protrusion and protrusion accommodating part so that it is easier to achieve the charging process and the charger is protected from damage.

7. Claims 4, 5, 7, 8, 10, 11, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaite (U.S. 6,016,046) in view of Park (U.S. 6,683,438).

Regarding claims 4, 5, 7, 8, 10, 11, and 28, Kaite does not disclose wherein a protrusion and a protrusion accommodating part provided in the second terminal part and the first terminal part, respectively. Kaite also does not further disclose wherein at least one of the protrusion and the protrusion accommodating part is provided with guiding slants. Park discloses in figure 1, item 300 and 100, a protrusion and a protrusion accommodating part where both contain guiding slants, which can be implemented to secure the fit of the charger and the device. At the time of invention, it would have been obvious to a person of ordinary skill in the art to have a protrusion part and a protrusion accommodating part, both with guiding slants, so that the device is guided to the charger and so the device fits securely during charging.

8. Claims 13, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaite (U.S. 6,016,046) in view of Fernandez (U.S. 6,184,651).

Regarding claims 13, 14, and 15, Kaite does not disclose wherein a charging controller provided in the second charging part to transmit a control signal to the charger. Kaite does not further disclose wherein the first charger comprises: a first wireless communication part to allow communication between the charger and the robot; and a power controller to control an inverter of the high-frequency current generator in response to the control signal transmitted from the charging controller through the first wireless communication part. Fernandez discloses in figure 3, item 47 a communication controller in the second charging part, which controls the charging by transmitting a control signal to the charger. Fernandez further discloses in figure 3, item 39 a radio transceiver, which uses wireless communication to

communicate between the charger and the device. Fernandez further discloses in figure 3 item 11 a primary controller controls the charging. At the time of invention, it would have been obvious to a person of ordinary skill in the art to implement a charging controller, which transmits signals to the charger using wireless communication, so that charger does not overcharge the battery and so that the communication is not confined to a limited range of usage.

9. Claims 21 thru 26 rejected under 35 U.S.C. 103(a) as being unpatentable over Kaite (U.S. 6,016,046) in view of Osawa (U.S. 6,764,373).

Regarding claims 21 thru 26, Kaite does not disclose wherein the protrusion and the protrusion accommodating part are provided so that the robot contacts the charger within a charging position even if a position of the robot is not precisely controlled. Kaite does not further disclose wherein the battery of the robot is charged even when the position of the robot is not precisely controlled. Osawa discloses in figure 14, item 85 the protrusion is used to charge the robot Osawa further discloses in column 21 lines 23 thru 29 that electrical connection is made in any position because no severe accuracy is required for electrical connection alignment. At the time of invention, it would have been obvious to design the system so that charging is performed with a large margin for error because it is easier to begin charging when the charging is not restricted to a small margin of space.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexis Boateng whose telephone number is (571) 272-5979. The examiner can normally be reached on 8:30 am - 6:00 pm, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Sherry can be reached on (571) 272-2084. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AB


Adolf Deneke Berhane
Primary Examiner